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excluded. The perpetual clearing of undergrowth means also the ultimate destruction of forest, as the natural succession is thus prevented.

As an offset to this public and private vandalism, we have near our cities a goodly number of citizens who preserve more or less of nature in their private parks. It will be to these to whom we must look to replenish our stock of native shrubs and herbs, if the vandal continues to have full swing elsewhere.

THE forty-fifth meeting of the American Association for the Advancement of Science to commence at Buffalo, N. Y., on August 22d, will be characterized by one feature which is deemed by the society an improvement over previous meetings. No excursions will be made during the working hours of the day during the session, only those occupying evening hours being acceptable. At the close of the meeting the field for such diversions will be clear. The geological excursions have been so arranged as not to conflict with the meetings; and the six scientific societies, which meet about the same time, it is hoped will contribute to the importance of the general gathering. It is anticipated that these arrangements will arrest the tendency to dissipation of energy which has been apparent during the last few years. If the habit of many of the embryologists to absent themselves could be overcome, the full force of the Association would be represented. It is expected that a number of evening lectures will present to the public the latest results of research in America.

RECENT LITERATURE.

Surface Colors :—The object of the little book on this subject¹ by Dr. Walter, of Hamburg is apparently to furnish zoologists, mineralogists, and chemists with an accurate explanation of certain color phenomena which are not as yet universally understood, and which are incompletely treated even in the best text-books on Physics. The keynote of the whole book is given in a single sentence of the introductory chapter. "The intensity of the light reflected from any body may be calculated by Fresnel's ordinary formulæ for colorless substances, in the case of those rays which are slightly or not at all absorbed by the

¹ Die Oberflächen-oder Schillerfarben, von Dr. B. Walter, pp. VIII + 122, Braunschweig, F. Vieweg und Sohn, 1895.

body in question ; but for wave-lengths which are strongly absorbed by the given substance, Cauchy's formulæ for the intensity of metallic reflection should be used." It appears from these formulæ that the intensity of the reflected light depends on the index of refraction and on the coefficient of absorption of the substance presenting the reflecting surface. Since both these factors are different for light of different colors, it is shown that white light must be reflected with some of its "components" relatively weaker than others, *i. e.*, no longer in the proper proportion to give the sensation of white light. The application to the colors seen in the mineral kingdom is illustrated by the example of magnesium cyanplatinite, Mg Pt (CN)_4 , where,—as is true of most crystals,—the index of refraction and the coefficient of absorption vary with the direction in which the light vibrates, as well as with the wave-length of the light. The extent to which true surface color is observable on minerals is not indicated, though the *possibility* of a very wide application is clearly shown.

In the appendices, certain mathematical aspects of the subject are treated in a manner suited to the requirements of physicists.—A. C. G.

The Whence and Whither of Man.²—This book comprises a series of lectures delivered at Union Theological Seminary, with some additional matter. The author discusses the doctrine of Evolution from the standpoint of a theologian. He endeavors to show that the great law of animal and human development as revealed in the sequence of physical and mental development is that those species survive which are best conformed to their environment ; that this law holds good in the development of the rational, the dominant faculty in man ; and finally, to become higher man he must develop a moral-nature by attaining a knowledge of himself as a moral agent, and while not disregarding the body, he must subordinate its appetites to the higher motives furnished by right and duty. It is in following this line of thought that the author hopes for a definite answer as to the future destiny of man.

The closing chapter deals with the present aspects of the theory of evolution. He here compares the various hypotheses of evolution and considers their merits. He judiciously selects the good elements of all of them, concluding that "each theory contains important truth." He concludes that Nägeli's view of "initial tendencies" is too often undervalued. "My own conviction is steadily strengthening that without

² *The Whence and Whither of Man.* By John M. Tyler, New York, 1896, Charles Scribner's Sons, Publishers.